density at least 5 times that of the corresponding conventional star polymer, (3) a molecular volume that is equal to or less than 50 percent of the volume of the conventional star polymer, and (4) the two-dimensional molecular diameter of the dense star polymer is in the range from about 25 to about 500 Angstrom units.

3. The polymer of claim **1** which is a dendrimer having a polyvalent core that is covalently bonded to at least 1 ordered dendritic branch which extends to two generations such that each dendritic branch has at least four terminal groups and a symmetrical structure.

4. The dense star polymer of claim **2** having at least 3 core branches per core.

5. The dense star polymer of claim **4** which is a polyether wherein the core is derived from a polyol and the core branches have ether linkages.

6. The dense star polymer of claim **2** which is a polyether wherein the core is derived from a polyol and the core branches have ether linkages.

7. A dendrimer having (1) a polyvalent core derived from ethylene glycol, or a polyalkylene polyol and (2) at least two ordered dendritic core branches which (a) are covalently bonded to the polyvalent core, (b) extend through at least two generations, and (c) have at least 3 terminal groups per core branch.

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